

PATENT SPECIFICATION

(11) 1443426

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- (21) Application No. 49814/72 (22) Filed 28 Oct. 1972
(21) Application No. 14889/73 (22) Filed 28 March 1973
(23) Complete Specification filed 16 Oct. 1973
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(54) IMPROVEMENTS IN OR RELATING TO COSMETICAL COMPOSITIONS

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The following amendments were allowed under Section 29 on 13 December 1976

Page 7, lines 21, 23 and 38, page 9, lines 5 and 7, *after* salt of *insert* sulphated

THE PATENT OFFICE
14 January 1977

Bas 31469/21

ERRATUM

SLIP NO 2

SPECIFICATION NO 1443426

Page 1, Heading (72) Inventors *before* VICTOR *insert* ROBERT

THE PATENT OFFICE
9 February 1977

Bas 33287/6

35 amide or fatty acid alkanolamide having a mean ethoxy group content of up to 15
ethoxy groups per mole and wherein the hydrocarbon chains in the fatty or fatty acid
moiety each contain from 8 to 18 carbon atoms, or a salt thereof, and at least one
cationic conditioner (as hereinafter defined) dispersed in an aqueous medium, the pH
of the composition being in the range of from 4 to 7.

35

40 The amine based detergents which are used in the shampoo compositions of the
present invention are truly amphoteric in nature, whilst the amide and alkanolamide
based detergents generally have lower anionic character than conventional anionic
detergents, particularly at pH's below 7.

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The amine, amide and alkanolamide based detergents may be prepared from a

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PATENT SPECIFICATION

(11) 1443 426

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6B4 6B5 6B8 6C8

- (72) Inventors VICTOR COOK and
MICHAEL WILLIAM STEED



(54) IMPROVEMENTS IN OR RELATING TO COSMETICAL COMPOSITIONS

(71) We, RECKITT & COLMAN PRODUCTS LIMITED, a British Company, of P O Box 26, 1/17 Burlington Lane, London, W.4., do hereby declare this invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

5 The present invention relates to cosmetical compositions and in particular to cosmetical shampoos.

10 Various combinations of detergents and conditioning agents have been proposed in attempts to produce a liquid shampoo composition which will both cleanse and condition the human hair. Hitherto, however, such compositions have not met with success due at least in part to the difficulty in meeting the many requirements of a satisfactory liquid shampoo composition.

15 The properties which are generally considered to be desirable in such a liquid composition are that it should be stable on storage, clean the hair, produce a foam which is persistent in the presence of grease but which can be removed by rinsing the hair with water, the composition should leave the hair lustrous and pleasant to the touch and impart a "conditioning effect" to the hair.

20 By the term "conditioning effect" or "improvement in hair condition" as used herein is meant that one or more of the following results is obtained: an improvement in the ease of combing of "wet" and "dry" rinsed hair; an increase in the softness of the hair to the touch; an elimination of the tendency of the hair to tangle; a reduction in the tendency of the hair to acquire a charge of static electricity which produces "fly-away" characteristics; and an increase in gloss.

25 Furthermore, the composition must be non-irritant particularly to the eyes of the user.

30 The deposition of a hair conditioner from a two phase system such as an emulsion in which the conditioner is present as small droplets or particles, does not provide a continuous coverage of conditioner on the hair. This is undesirable since it may give rise to poor combability, poor gloss and stickiness of the hair.

35 We have now found that a single phase detergent-conditioner system may be prepared by combining a cationic conditioner with a particular class of detergents.

40 Accordingly the present invention provides a cosmetical shampoo composition which comprises at least one detergent which is a sulphated fatty amine, fatty acid amide or fatty acid alkanolamide or a sulphated ethoxylated fatty amine, fatty acid amide or fatty acid alkanolamide having a mean ethoxy group content of up to 15 ethoxy groups per mole and wherein the hydrocarbon chains in the fatty or fatty acid moiety each contain from 8 to 18 carbon atoms, or a salt thereof, and at least one cationic conditioner (as hereinafter defined) dispersed in an aqueous medium, the pH of the composition being in the range of from 4 to 7.

45 The amine based detergents which are used in the shampoo compositions of the present invention are truly amphoteric in nature, whilst the amide and alkanolamide based detergents generally have lower anionic character than conventional anionic detergents, particularly at pH's below 7.

The amine, amide and alkanolamide based detergents may be prepared from a

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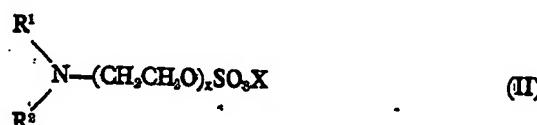
suitable starting material by processes which involve a sulphatic or sulphonation reaction. Generally a sulphonation reaction, for example using sulphamic acid or an alkyl sulphamic acid is more applicable to the preparation of amine based detergents than amide or alkanolamide based detergents. The amide and alkanolamide based detergents may be prepared using a sulphonation reaction, for example with sulphur trioxide or chlorosulphonic acid. The milder sulphonation reaction is more generally of use in the preparation of amine based detergents since the amine derivatives are more labile bases. However, under suitable reaction conditions, either reaction is applicable to the amine, amide and alkanolamide starting materials.

It will be appreciated that by using an alkyl substituted sulphamic acid, an amine salt instead of an ammonium salt is obtained. The alkali metal and alkaline earth metal salts may be prepared for example via cation exchange by reacting an appropriate ammonium salt with a strong base. A sodium salt may thus be prepared by the treatment of an ammonium salt with sodium hydroxide.

The amine based detergents used in the shampoo compositions of the present invention may generally be represented by the formulae:



or



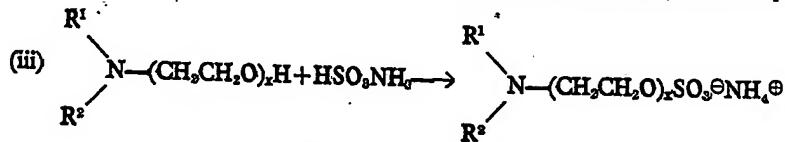
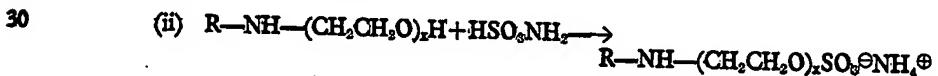
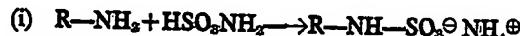
wherein R, R¹ and R² are alkyl or alkenyl groups each containing from 8 to 18 carbon atoms;

x is 0, or an integer of 1 to 15; and

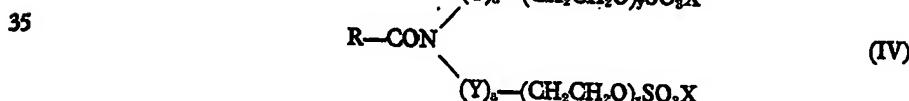
X is a hydrogen atom, ammonium, a quaternary ammonium salt, or the ion of alkali metal or alkaline earth metal.

Preferably the groups R, R¹ and R² will each contain from 12 to 14 carbon atoms, the groups R¹ and R² in Formula II being the same or different.

Examples of typical reactions which may be used in their production are given below:



The amide and alkanolamide based detergents used in the shampoo compositions of the present invention may generally be represented by the formulae:



wherein R is an alkyl group containing from 8 to 18 carbon atoms;

x is 0, or an integer of 1 to 15;

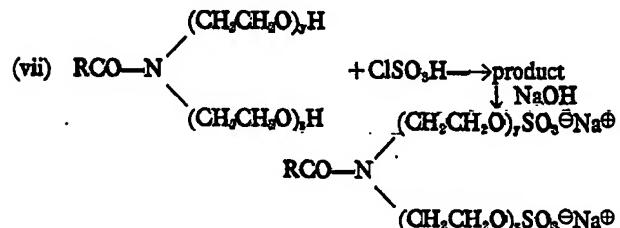
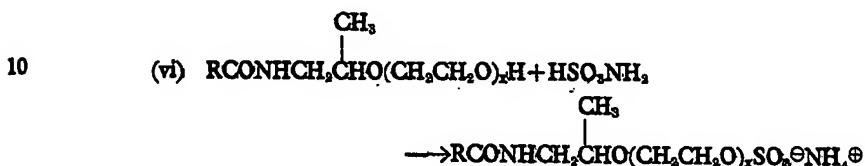
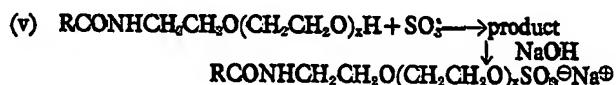
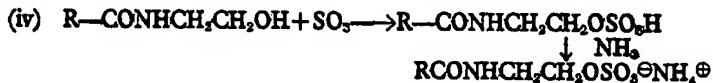
X is a hydrogen atom, ammonium, a quaternary ammonium salt, or the ion of an alkali or alkaline earth metal;

Y is a straight chain or branched chain alkoxy group containing 2 or more carbon atoms;

a is 0, or the integer 1;
y is an integer of 1 to 14;
z is an integer of 1 to 14;
the sum of y and z being not more than 15.

5 Preferably the group R contains from 12 to 14 carbon atoms.

Examples of typical reactions which may be used in the preparation of amide and alkanolamide based detergents are given below:



The ethoxy group content in the ethoxylated amine, amide and alkanolamide based detergents used in the compositions of the present invention may be up to 15 ethoxy groups per mole. Preferably however detergents with a mean value of 2 to 4 groups per mole are used. The preferred mean or average ethoxy group content may be obtained by blending two or more detergents having different ethoxy group contents. For example, a sulphated ethoxylated fatty acid alkanolamide containing 1 to 6 ethoxy groups per mole may be blended with a sulphated ethoxylated fatty acid alkanolamide containing from 6 to 20 ethoxy groups per mole.

The chain length of the fatty or fatty acid moiety of the detergent is preferably that found in nature in coconut oil or palm kernel oil, that is chiefly a chain length of 12 carbon atoms.

The degree of conversion of the starting materials to detergents in the above reactions varies, but will usually be of the order of 50 to 100%. When the presence of the starting material in the shampoo composition would be undesirable, as in the case of simple amines, it is preferably removed by ion exchange precipitation, or by other methods. In the case of alkanolamides where the starting material is a common foam stabilizer, purification is unnecessary since the free alkanolamide will act as a foam stabilizer.

The total level of detergent in the shampoo compositions of the present invention may be varied in accordance with the degree of foaming and cleansing desired. It will generally be in the range of from 5 to 35%, preferably from 10 to 30% by weight of the total composition. The amine, amide or alkanolamide based detergent may be partially replaced by a subsidiary detergent, but such subsidiary detergent will constitute less than 50% of the total detergent. Subsidiary detergents which may be used are amphoteric detergents, for example, alkyl betaines, such as lauryl betaines, amines oxides such as alkyl dimethyl amine oxide and imidazolines, or anionic detergents such as sodium lauryl ether sulphate. The use of anionic subsidiary detergents is however likely to detract from the conditioning properties of the shampoo compositions.

The preferred pH of the shampoo compositions of the present invention will depend upon the particular formulation but generally a reduction of pH enhances the cationic character of the composition and depresses anionic character. The invention is

operated at a pH within the range 4 to 7 and a pH in the range 4.5 to 6.0 is particularly preferred.

The acid used for adjusting the pH should be selected to avoid hydrolysis and the preferred acids are phosphoric acid, acetic acid, tartaric acid, citric acid or a mixture of such acids. The pH is preferably adjusted so that deposition of the conditioner upon the hair, without hydrolysis of the detergents, is optimised.

By the term "cationic conditioner" as used herein is meant a compound in which the molecules have one or more cationic charges, which contain at least one backbone chain having a minimum of eight carbon atoms and which has a molecular weight above 200.

The cationic conditioner may comprise a mixture of at least one mono cationic compound and at least one polycationic compound.

Examples of mono cationic compounds which may be used in the compositions of the invention are:

- 15 alkyl trimethyl ammonium halides,
N-alkyl pyridinium halides,
N-alkyl isoquinolinium halides,
di-alkyl dimethyl ammonium halides,
alkyl aryl dimethyl ammonium halides,
- 20 fatty acid amino alkylamides sold under the trade name Sapamine and
alkyl benzyl hydroxy ethyl imidazolinium chloride.

Mixture of such compounds may also be used.

In order to improve the solubility of such compounds the nitrogen groups may be ethoxyLATED. This is particularly important in the case of dialkyl quaternary ammonium salts whose solubility in an aqueous medium is low.

Examples of typical polycationic compounds which may be used in the process of the invention are:

- 30 quaternised polyvinylpyrrolidone,
Resyn 78—3510 (a high molecular weight aminoethyl acrylate/phosphate/acrylate copolymer produced by National Adhesives Limited)
- 35 Gafquat polymers e.g. Gafquat 734, 755, 750 or 759 (quaternised vinylpyrrolidone polymers produced by G.A.F Limited)
- 40 Delsette polymers e.g. Delsette 101 or 201 (low molecular weight condensation product of adipic acid, diethylene-triamine polyamide and epichlorhydrin produced by Hercules Limited)
- 45 Polymer Jr (a quaternary nitrogen containing cellulose ether produced by Union Carbide Corporation)

A mixture of such compounds may also be used. (Resyn, Gafquat, Delsette and Polymer Jr are Trade Marks).

The cationic conditioners may be used in the compositions of the present invention in an amount of active ingredient from 0.1 to 10% by weight of the total composition, for example from 0.5 to 2.5% by weight.

The cationic conditioner is substantive to the human hair, an effect believed to be due to electrostatic attraction. During use of the compositions of the invention the conditioner is deposited as a thin continuous film over the hair shaft to provide a conditioning effect on the hair. The deposition of the cationic conditioner by this mechanism achieves a total or almost total coverage of each hair shaft with a thin film of the conditioner. The film of conditioner may be as thin as one monolayer and still exert a conditioning effect on the hair.

In a particular aspect the present invention provides a cosmetical shampoo composition which comprises at least one detergent which is a salt of a sulphated ethoxyLATED fatty acid alkanolamide having a mean ethoxy group content of from 1 to 6 ethoxy groups per mole and wherein the hydrocarbon chains in the fatty acid moiety each contain from 12 to 18 carbon atoms and at least one cationic conditioner (as hereinbefore defined) dispersed in an aqueous medium the pH of which is adjusted to pH 4.0 to 6.0 prior to the dispersion of the cationic conditioner therein. Preferably the mean ethoxy group content of the detergent is from 2 to 4 ethoxy groups per mole.

The cosmetical shampoo of the present invention may contain additives which are common in contemporary shampoo preparations, providing that such additives do not interfere to any significant extent with the mechanism of deposition of the cationic conditioner onto the hair.

Non-ionic foam stabilizers typically used in shampoo preparations may be incorporated into the shampoo compositions of the present invention. Typical examples

of foam stabilizers are amine oxides, such as coco dimethyl amine oxide, alkyl betaines such as coco diethyl betaine, alkanolamides such as coco fatty acids monoethanolamide, coco fatty acids diethanolamide, coco fatty acids isopropanolamide and ethoxylated alkanolamides such as ethoxylated coco fatty acids monoethanolamide. The foam stabilizers are generally incorporated in the compositions of the present invention in an amount of from 1 to 5% by weight based on the weight of the total composition.

Thickeners, such as simple salts, ethoxylated fatty acids or cellulosic derivatives, or thinners, such as glycols, polyglycols or polyalkylene glycols may be incorporated into the compositions of the invention.

If desired medicaments such as antimicrobial agents may be incorporated into the compositions. Typical examples of medicaments suitable for inclusion in shampoo compositions are 2,4,4'-trichloro-2-hydroxyphenyl ether sold under the Registered Trade Mark Irgasan DP 300 (Ciba Geigy), trichlorocarbanilide, cetyl trimethyl ammonium chloride, benzalkonium chloride, zinc pyridinethione or colloidal sulphur.

Further additives such as protein hydrolysates, lanolin and derivatives thereof, herbal or balsamic extracts, vitamins, vegetable oils, dyes, perfumes and preservatives, such as formalin or dodecyl guanidine, may be incorporated without impairing the fundamental properties of the compositions.

Pearlising or opacifying agents may also be added, for example ethylene glycol monostearate, ethylene glycol distearate, alkaline earth soaps or fatty acid alcohols.

The following Examples further illustrate the present invention. Percentages are percentages by weight based on the total weight of the composition unless otherwise stated.

EXAMPLE 1

The following materials were mixed together at room temperature in a mixing vessel:

		percentage w/w	
30	Ammonium salt of sulphated 10 mole ethoxylated coco amine (50% aqueous solution)	20.0	30
	Ammonium salt of sulphated coco amine (50% paste)	15.0	
	Lauryl dimethyl betaine (30% aqueous solution)	4.0	
	Gafquat 734 (50% solution in isopropanol)	2.0	
35	Colour, preservative, perfume	q.s.	
	Water	to 100.0	35

The mixture was adjusted to pH 5.0 by the addition of citric acid. A clear liquid shampoo composition was obtained.

EXAMPLE 2

The following materials were mixed together at room temperature in a mixing vessel:

		percentage w/w	
45	Ammonium salt of sulphated 10 mole ethoxylated coco amine (50% aqueous solution)	10.0	45
	Ammonium salt of sulphated 5 mole ethoxylated coco amine (50% aqueous solution)	28.0	
	Coco fatty acids diethanolamide	3.0	
	Delsette 101 (20% aqueous solution)	7.5	
50	Ethylene glycol monostearate	1.75	
	Formalin	0.1	50
	Colour, perfume	q.s.	
	Water	to 100.0	

The mixture was adjusted to pH 5.2 by the addition of citric acid. A pearlescent liquid shampoo composition was obtained.

EXAMPLE 3

The following materials were mixed together at room temperature in a mixing vessel:

		percentage w/w	
5	Ammonium salt of sulphated 5 mole ethoxylated coco amine (50% aqueous solution)	25.0	5
10	Lauroylcyloimidinium-1-ethoxy ethionic acid-2-ethionic acid di-sodium salt sold under the trade mark Miranol C2M concentrate	15.0	10
	Resyn 78—3510 (20% aqueous solution)	10.0	
	4.5 mole ethoxylated coco fatty acids monoethanolamide	4.0	
	Protein hydrolysate WSPX 250 (50% aqueous solution)	2.0	
15	Colour, perfume	q.s.	
	Phenyl mercury nitrate	0.002	15
	Water	to 100.0	

The mixture was adjusted to pH 5.5 by the addition of tartaric acid. A clear liquid shampoo composition was obtained.

EXAMPLE 4

		percentage w/w	
20	The following materials were mixed together in a mixing vessel:	20	
25	Ammonium salt of sulphated 2 mole ethoxylated coco fatty acids monoethanolamide (50% aqueous solution) (a)	20.0	
	Ammonium salt of sulphated 6 mole ethoxylated coco fatty acids monoethanolamide (50% aqueous solution) (a)	20.0	25
	Coco dimethyl amine oxide (30% aqueous solution)	4.0	
	Gafquat 755 (20% solution in isopropanol)	12.0	
30	Extrapone Complex No. 10 Herbal Extract	1.5	
	Colour, perfume, preservative	q.s.	30
	Water	to 100.0	

The mixture was adjusted to pH 5.0 by the addition of phosphoric acid. A clear liquid shampoo composition was obtained.

35	(a) The conversion to these detergents was 60% effective and hence the 50% aqueous solution contains 30% sulphamated material and 20% unreacted coco fatty acids monoethanolamide.	35
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EXAMPLE 5

The following materials were mixed together at room temperature in a mixing vessel:

		percentage w/w	
40	Sodium salt of sulphated 1.9 mole ethoxylated coco fatty acids monoethanolamide (30% aqueous solution) (b)	75.0	40
45	Lauric isopropanolamide	1.0	
	Coco dimethyl betaine (30% aqueous solution)	5.0	45
	18 mole ethoxylate stearic acid	2.0	
	Cetyl trimethylammonium bromide sold under the Registered Trade Mark Cetavlon	0.75	
	Gafquat 750 (20% solution in isopropanol)	2.5	
50	Methyl p-hydroxy benzoate	0.1	50
	Colour, perfume	q.s.	
	Water	to 100.0	

The mixture was adjusted to pH 6.2 by the addition of citric acid. A clear liquid shampoo composition was obtained.

55	(b) The conversion to sulphate in the manufacture of this product was 75% effective and hence the 30% aqueous solution contains 24% sulphate and 6% unreacted coco fatty acids monoethanolamide.	55
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EXAMPLE 6

The following materials were mixed together at room temperature in a mixing vessel:

		percentage w/w	
5	Sodium salt of sulphated 2 mole ethoxylated coco fatty acids monoethanolamide (30% aqueous solution) (c)	40.0	
	Coco dimethyl betaine (30% aqueous solution)	20.0	
	Resyn 78—3510 (20% solution in isopropanol)	11.0	
10	2-bromo-2-nitropropan-1,3-diol sold under the trade mark Bronopol	0.02	10
	Preservative, colour, perfume	q.s.	
	Water	to 100.0	

The mixture was adjusted to pH 5.0 by the addition of citric acid. A clear liquid shampoo composition was obtained.

- 15 (c) The conversion to this detergent was 75% effective. 15

EXAMPLE 7

The following materials were mixed together at room temperature in a mixing vessel:

		percentage w/w	
20	Sodium salt of 1.9 mole ethoxylated coco fatty acids monoethanolamide (30% aqueous solution) (d)	32.0	20
	Sodium salt of 6 mole ethoxylated coco fatty acids monoethanolamide (30% aqueous solution) (d)	32.0	
25	Coco fatty acids diethanolamide	2.0	25
	Cetyl trimethyl ammonium chloride	1.0	
	20 mole ethoxylated lanolin	0.5	
	Preservative, colour, perfume	q.s.	
	Water	to 100.0	

- 30 The mixture was adjusted to pH 4.9 by the addition of citric acid. A clear liquid shampoo composition was obtained. 30

- (d) The conversion to these detergents was 75% effective.

EXAMPLE 8

The following materials were mixed together at room temperature in a mixing vessel:

		percentage w/w	
	Sodium salt of 1.9 mole ethoxylated coco fatty acids monoethanolamide (30% aqueous solution) (e)	75.0	
40	Coco fatty acids diethanolamide	3.0	40
	Coco dimethyl amine oxide	4.5	
	Resyn 78—3510 (20% aqueous solution)	9.0	
	Irgasan DP 300	0.1	
	Sodium chloride	1.5	
45	Colour, perfume, preservative	q.s.	45
	Water	to 100.0	

The mixture was adjusted to pH 5.1 by the addition of citric acid. A clear liquid shampoo composition was obtained.

- 50 (e) The conversion to this detergent was 75% effective. 50
 The shampoo compositions prepared in Examples 1 to 8 were tested in individual tests against a shampoo, marketed as having a conditioning effect, in half-head tests and the uncombed hair after final rinsing was compared visually. The half-heads which had been treated with a composition of one of Examples 1 to 8 had the appearance of having been combed through, whereas the half-heads which had been treated with the comparisons shampoo were visibly tangled. It was found that improved wet and dry combability was imparted to the hair by the shampoo compositions of the present invention and that tangling was practically eliminated. Moreover, the hair shampooed 55

with the compositions of the invention was clean and soft to the touch, and had good lustre.

EXAMPLE 9
The following materials were mixed together at room temperature in a mixing vessel:

		percentage w/w	5
10	Ammonium salt of sulphated 5 mole ethoxylated broad cut coco fatty acids monoethanolamide (45% aqueous solution)	40.0	
10	Coco fatty acids diethanolamide	5.0	10
10	Alkyl ($C_{12}-C_{14}$) dimethyl betaine (30% aqueous solution)	3.0	
10	Formalin (40% solution)	0.1	
15	Perfume	0.5	
15	Colour	0.001	
15	Gafquat (50% solution in isopropanol)	2.0	15
	Water	to 100.0	

The mixture adjusted to pH 5.0 with citric acid to yield a clear liquid shampoo.

The clear liquid shampoo was tested against a shampoo, marketed as having conditioning effect, in half-head tests and the uncombed hair after final rinsing was compared visually. The half-head treated with the composition of Example 9 had the appearance of having been combed through whereas the comparison half-head was visibly tangled. It was found that improved wet and dry combability was imparted to the hair and tangling practically eliminated. Moreover, the washed hair was clean and soft to the touch and had good lustre.

EXAMPLE 10
The following materials were mixed together:

		percentage w/w	25
30	Ammonium salt of sulphated 2 mole ethoxylated coco fatty acids monoethanolamide (50% aqueous solution)	30.0	30
30	Ammonium salt of sulphated 10 mole ethoxylated coco fatty acids monoethanolamide (50% aqueous solution)	10.0	
35	Coco-fatty acids diethanolamide	3.0	
35	Mixed alkyl ($C_{12}-C_{14}$) amine oxide (30% aqueous solution)	3.3	35
35	3-mole ethoxylated lauryl alcohol	3.0	
35	Resyn 78-3510 (20% solution in water)	10.0	
	Water	to 100.0	

The mixture was adjusted to pH 5.0 with citric acid to yield a clear liquid shampoo.

EXAMPLE 11
The following ingredients were mixed together:

		percentage w/w	40
45	Sodium salt of sulphated 2 mole ethoxylated coco fatty acids monoethanolamide (30% aqueous solution)	70.0	45
45	Lauryl diethanolamide	3.0	
50	Mixed alkyl ($C_{12}-C_{14}$) amines oxide (30% solution)	3.3	
50	Formalin (40% solution)	0.1	
50	Perfume	0.4	
50	Colour	0.001	50
50	Resyn 78-3510 (20% solution in water)	10.0	
	Water	to 100.0	

The mixture was adjusted to pH 5 ± 0.3 with citric acid. The resultant liquid shampoo was clear and had good cleansing and conditioning properties comparable with the results of Example 9.

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EXAMPLE 12

The following ingredients were mixed together:

		percentage w/w	
5	Sodium salt of 2 mole ethoxylated coco fatty acids monoethanolamide (30% aqueous solution)	50.0	5
	Sodium salt of 15 mole ethoxylated coco ($C_{12}-C_{14}$) monoethanolamide (30% aqueous solution)	6.0	
10	Mixed alkyl ($C_{12}-C_{14}$) amines oxide (30% aqueous solution)	4.0	
	Mixed alkyl ($C_{12}-C_{14}$) betaines (30% aqueous solution)	3.3	10
	Preservative	0.1	
	Colour	0.002	
	Perfume	0.6	
15	Protein hydrolysate	1.0	
	Resyn 78-3510 (20% solution in water)	6.0	
	Water	to 100.0	15

The mixture was adjusted to pH 5.2 with phosphoric acid to provide a clear liquid conditioning shampoo of good effect comparable with the results of Example 9 in half-head tests.

20 It will be understood that whilst the compositions of the present invention are particularly useful as hair shampoos, the invention is not limited to such use. Thus, the composition of the invention may be used as body shampoos or the like.

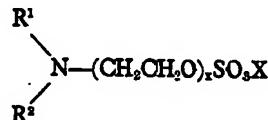
WHAT WE CLAIM IS:—

25 1. A cosmetical shampoo composition which comprises at least one detergent which is a sulphated fatty amine, fatty acid amide or fatty acid alkanolamide or a sulphated ethoxylated fatty amine, fatty acid amide or fatty acid alkanolamide having a mean ethoxy group content of up to 15 ethoxy groups per mole and wherein the hydrocarbon chains in the fatty or fatty acid moiety each contain from 8 to 18 carbon atoms, or a salt thereof, and at least one cationic conditioner (as hereinbefore defined) dispersed in an aqueous medium, the pH of the composition being in the range of from 4 to 7.

30 2. A cosmetical shampoo composition as claimed in claim 1 wherein the detergent is an amine based detergent having the formula:



35 or



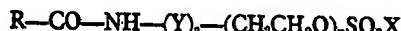
wherein R, R¹ and R² are alkyl or alkenyl groups each containing from 8 to 18 carbon atoms;

40 x is 0, or an integer of 1 to 15; and

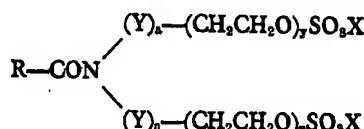
X is a hydrogen atom, ammonium, a quaternary ammonium salt, or the ion of an alkali metal or alkaline earth metal.

3. A cosmetical shampoo composition as claimed in claim 2 wherein the groups R, R¹ and R² each contain from 12 to 14 carbon atoms.

45 4. A cosmetical shampoo composition as claimed in claim 1 wherein the detergent is an amide or alkanolamide based detergent having the formula:



or



- wherein R is an alkyl group containing from 8 to 18 carbon atoms;
x is 0, or an integer of 1 to 15;
X is a hydrogen atom, ammonium, a quaternary ammonium salt, or the ion of an
alkali or alkaline earth metal;
- 5 Y is a straight chain or branched chain alkoxy group containing 2 or more
carbon atoms;
a is 0, or the integer 1;
y is an integer of 1 to 14;
z is an integer of 1 to 14;
10 the sum of y and z being not more than 15.
5. A cosmetical shampoo composition as claimed in claim 4 wherein the group R
contains 12 to 14 carbon atoms.
6. A cosmetical shampoo composition as claimed in any one of the preceding
claims wherein the mean ethoxy group content is from 2 to 4 ethoxy groups per mole.
- 15 7. A cosmetical shampoo composition as claimed in claim 6 wherein the mean
ethoxy group content is obtained by blending two or more detergents having different
ethoxy group contents.
8. A cosmetical shampoo composition as claimed in any one of the preceding
claims wherein the total level of detergent in the shampoo is in the range of from 5
20 to 35% by weight based on the total weight of the composition.
9. A cosmetical shampoo composition as claimed in claim 8 wherein the total level
of detergent in the shampoo is in the range of from 10 to 30% by weight based on
the total weight of the composition.
10. A cosmetical shampoo composition as claimed in any one of the preceding
claims wherein the amine, amide or alkanolamide based detergent is partially replaced
25 by a subsidiary detergent, the subsidiary detergent constituting less than 50% by
weight of the total detergent.
11. A cosmetical shampoo composition as claimed in any one of the preceding
claims wherein the pH of the composition is in the range 4.5 to 6.0.
12. A cosmetical shampoo composition as claimed in any one of the preceding
30 claims wherein the pH of the composition is adjusted to the desired level by the addition
of phosphoric acid, acetic acid, tartaric acid, citric acid or a mixture of such
acids thereto.
13. A composition as claimed in any one of the preceding claims wherein the
35 cationic conditioner is a mixture of a mono cationic compound and a polycationic
compound.
14. A cosmetical shampoo composition as claimed in any one of the preceding
claims wherein the cationic conditioner is a mono cationic compound which is an alkyl
40 trimethyl ammonium halide, an N-alkyl pyridinium halide, an N-alkyl isoquinolinium
halide, a di-alkyl dimethyl ammonium halide, an alkyl aryl dimethyl ammonium
chloride or a mixture of such compounds.
15. A cosmetical shampoo composition as claimed in any one of claims 1 to 13
45 wherein the cationic conditioner is a polycationic compound as hereinbefore specifically
described or a mixture of such compounds.
16. A cosmetical shampoo composition as claimed in any one of the preceding
claims wherein the cationic conditioner is present in an amount of from 0.1 to 10%
by weight based on the total weight of the composition.
17. A cosmetical shampoo composition as claimed in claim 16 wherein the
50 cationic conditioner is present in an amount of from 0.5 to 2.5% by weight based
on the total weight of the composition.
18. A cosmetical shampoo composition which comprises at least one detergent
55 which is a salt of a sulphated ethoxylated fatty acid alkanolamide having a mean
ethoxy group content of from 1 to 6 ethoxy groups per mole and wherein the hydro-
carbon chains in the fatty or fatty acid moiety each contain from 12 to 18 carbon
atoms and at least one cationic conditioner (as hereinbefore defined) dispersed in an
aqueous medium the pH of which is adjusted to pH 4.0 to 6.0 prior to the dispersion
of the cationic conditioner therein.
19. A cosmetical shampoo composition as claimed in claim 18 wherein the mean
ethoxylate chain length is from 2 to 4 units per mole.
20. A cosmetical shampoo composition as claimed in any one of the preceding
claims wherein the chain length of the fatty or fatty acid moiety is that found in
nature in coconut oil.
- 60 21. A cosmetical shampoo composition as claimed in any one of the preceding

claims wherein the chain length of the fatty or fatty acid moiety is that found in nature in palm kernel oil.

5 22. A cosmetical shampoo composition as claimed in any one of the preceding claims which additionally includes at least one of a non-ionic foam stabilizer, a preservative, a thickener, a medicament, a perfume, a colourant or a pearlising or opacifying agent. 5

23. A cosmetical shampoo composition as claimed in claim 1 substantially as hereinbefore described with reference to any one of Examples 1 to 8.

10 24. A cosmetical shampoo composition as claimed in claim 18 substantially as hereinbefore described with reference to any one of Examples 9 to 12. 10

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